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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,616	09/27/2000	Masakazu Nishikawa	Q58116	6123
7590 04/29/2004 Sughrue Mion Zinn MacPeak & Seas 2100 Pennsylvania Avenue N W Washington, DC 20037-3202			EXAMINER BERNATZ, KEVIN M	
			ART UNIT 1773	PAPER NUMBER

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/670,616	Applicant(s) NISHIKAWA ET AL.	
	Examiner Kevin M Bernatz	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5 and 21-34 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5 and 21-32 is/are rejected.
- 7) ☒ Claim(s) 33 and 34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

1. New claims 33 and 34, filed on January 30, 2004, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

4. Claims 33 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

5. Claims 1, 4, 5 and 21 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuyama et al. ('607) in view of Hosoi et al. ('794), Sueoka et al. (WO 99/020463) and Saito et al. (JP 10-021529 A) for the reasons of record as set forth

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in Paragraph No. 5 of the Office Action mailed on July 30, 2003. See the provided English Translations of JP '529 A and WO '463.

Regarding claims 1 and 5, Okuyama et al. disclose a floppy disk comprising a base material (*Figure 4, element 1 and col. 10, lines 35 – 40*) and, sequentially formed on at least one surface of said base material, a metal seed layer (*Figure 4, element 6 and col. 15, lines 43 – 55: "Ti"*) a primer layer (*Figure 4, element 2; col. 7, lines 17 – 20; and col. 12, lines 60 – 62: "CrMo"*) a magnetic layer (*Figure 4, element 3 and col. 9, lines 20 - 30*), a protective layer (*Figure 4, element 4*) and a lubricant layer (*col. 11, lines 58 – 67*), wherein said base material comprises a nonmagnetic flexible support member (*col. 10, lines 35 – 40*). The limitations "floppy" and "flexible" were interpreted as in Paragraph 9 of the Office Action mailed October 22, 2001 (Paper No. 3), i.e. any non-glass, ceramic, silicon or carbon substrate.

With regard to the limitations in the relative linear expansion coefficients and relative tensile strengths of the seed layer to the primer layer, the Examiner takes the position that these limitations would necessarily be present in the embodiments of the prior art since the claimed and prior art seed and primer layers are identical in composition and structural location. The examiner's sound basis for this assertion is the comparison of the disclosed Okumura et al. metal seed layer ("Ti") and primer layer ("CrMo") versus applicants' disclosed materials for use as the metal seed layers ("preferably contains at least one type of metal of Ta, Mo, W, V, Zr, Cr, Rh, Hf, Nb, Mn, Ni, Al, Ru, Ti and Si, ..." page 9, lines 17 – 22) and primer layers ("it is preferable to use chromium or an alloy containing chromium an at least one type of metals of Ti, W, Mo,

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V, Ta, B, Si, Nb, Zr, Al and Mn” page 10, lines 7 – 13). Since the linear expansion coefficient and tensile strength are material properties, since Okumura et al. disclose essentially identical materials as applicants, the Examiner deems that there is sound basis for believing that the disclosed property limitations would necessarily be present in the prior art products.

Okumura et al. fail to disclose a base material meeting applicants' claimed thickness range, nor possessing a heat resistant macromolecular flattening layer on surfaces of the support member meeting applicants' claimed material limitations.

However, Sueoka et al. teach a base material for a magnetic recording disk (*Paragraph 01*) comprising a nonmagnetic flexible support member (*Paragraphs 20 and 31*) and formed on at least one surface of said nonmagnetic flexible support member a polyamide layer (i.e. applicants "heat-resistant macromolecular flattening layer"), wherein said heat-resistant macromolecular flattening layer comprises at least one type of silicone resin, polyimide resin, polyamideimide resin or polyamide resin (*Paragraphs 20 and 31*). Sueoka et al. further teach that such a composite base material possesses good mechanical characteristics as well as good abrasion resistance (*Paragraphs 16 and 32*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Okumura et al. to utilize a composite base material meeting applicants' claimed material limitations as taught by Sueoka et al. since such a composite base material possesses a good mechanical characteristics as well as good abrasion resistance.

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Neither Okumura et al. nor Sueoka et al. disclose forming the above layers on both sides of a disk substrate, nor using flexible support members meeting applicants' claimed thickness range. It should be noted that while Sueoka et al. appear to teach away from using a double sided recording medium (*Paragraph 66*), the above teachings of back-coat layers are specific to magnetic **tapes** and not magnetic **disks** ("to prevent wrinkling and telescoping during film winding..."). Since Sueoka et al. clearly teach that the invention is applicable to both tapes and disks ("*The form of the magnetic recording medium is limited. It can be a disc, card or tape*"- *Paragraph 32*), the Examiner deems that one of ordinary skill in the art would have readily appreciated that a magnetic **disk** would not require the back-coat layers typical of magnetic **tapes** since they are not wound up for storage.

However, Hosoi et al. teach that it is known in the art that magnetic layers can be formed on one or both sides of a substrate (*col. 4, line 62 bridging col. 5, line 2*) and it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Okumura et al. in view of Sueoka et al. to use a double-sided magnetic disk as taught by Hosoi et al., since a double-sided magnetic disk would effectively double the amount of data that could be stored on the recording medium.

In addition, Saito et al. teach the importance of controlling the thickness of the flexible support member of a magnetic **disk** to within applicants' claimed range for appropriate rigidity, durability and overall physical properties depending on the diameter of the disk (*Paragraphs 12 and 13*). The Examiner deems that it would have been

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obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as the thickness of the flexible support member through routine experimentation, especially given the teaching in Saito et al. regarding the desire to optimize the thickness relative to the diameter to produce flexible magnetic recording disk substrates. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 4, Sueoka et al. teach that the flattening layer thickness can be varied to effect the physical properties, e.g. winding performance (*Paragraphs 30 - 32 and examples*). Sueoka et al. further teach that inorganic particles are contained within the layer and the layer thickness must be sufficient to both form the appropriate protrusion concentrations and bind the particles (*Paragraphs 26 - 29*). Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to use a thickness value of the flattening layer meeting applicants' claimed thickness limitation by optimizing the results effective variable through routine experimentation.

Regarding claim 21 - 24, Sueoka et al. disclose that the flattening layer possesses inorganic oxide fillers meeting applicants' claimed size limitations (*Paragraphs 26 - 29*) in order to insure good electromagnetic conversion properties and durability of the medium.

The limitation "wherein the temperature of the support member during the formation of the metal layer is within the range of 10 – 200 °C" is a process limitation in a product claim and is not further limiting in so far as the structure of the product is

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concerned. Furthermore, Okumura et al. disclose depositing the metal seed layer at temperatures meeting applicants' claimed range (*col. 11, lines 1 – 5*).

Regarding claims 27 – 30, Okumura et al. disclose magnetic layer compositions meeting applicants' claimed composition limitations (*col. 9, lines 45 – 65*).

Regarding claims 31 and 32, Okumura et al. disclose primer layers meeting applicants' claimed composition limitations (*col. 13, lines 42 – 45 and examples*).

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter: Okumura et al. only provides for a relatively thin (1 – 7 nm) titanium (Ti) layer (*col. 15, line 43 bridging col. 16, line 20*) as the seed layer and claims 33 and 34 are directed to non-Ti seed layer materials (claim 33) and thickness values, 20 – 60 nm, (claim 34) that are not anticipated or rendered obvious by the prior art.

Response to Arguments

7. **The rejection of claims 1, 4, 5, 21 - 32 under 35 U.S.C § 103(a) – Okuyama et al. in view of Mimura et al. and Hosoi et al.**

The above noted rejection has been withdrawn in view of the perfection of applicants' priority date, thereby removing Mimura et al. as applicable prior art.

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8. The rejection of claims 1, 4, 5, 21 - 32 under 35 U.S.C § 103(a) – Okuyama et al. in view of Hosoi et al., Sueoka et al., and Saito et al.

Applicant(s) argue(s) that Okuyama et al. only discloses rigid materials and not “floppy disks” and that applicants data (*page 10 of response*) provides experimental evidence that using a CrMo primer layer above a thin Ti layer does not necessarily meet applicants’ claimed property limitations. The examiner respectfully disagrees.

First, the Examiner notes that “floppy” has been given the broadest reasonable interpretation in view of the as-filed disclosure and the knowledge of one of ordinary skill in the art. Specifically, “floppy” merely refers to non glass, carbon, ceramic or silicon substrate materials and Okumura et al. clearly teach both the above “non-floppy” materials and polymeric substrates, thereby reading on the limitation “floppy”.

With regard to applicants argument against the presence of the claimed property in the Okumura et al. reference, applicants are reminded that attorney arguments are considered, but that experimental evidence should be submitted in the form of an executed declaration or affidavit to be given its full weight. With regard to the alleged data provided on page 10 of the response, the Examiner notes that the examples 21 – 24 are not compared against the closest prior art (i.e. Okumura et al.) examples. Specifically, no Mo atomic percent is given, nor is the CrMo thickness value recited, though the Examiner does not deem that the thickness of the layer is critical for determining the EUL or SUL value. The Examiner notes that Okumura et al. specifically requires a 10 – 30% Mo content (*col. 13, lines 42 – 45*) and the alleged data is not

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convincing that such a composition would not necessarily meet the claimed limitations with regard to EUL and SUL.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KMB
April 24, 2004



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